

Interventional treatment in children after TOF correction – late follow up, single centre study.

*Kuźma J. (1), Kołcz J. (2), Skorek P. (3), Wójcik A. (3), Druźbicki Ł. (3), Weryński P. (1)
Paediatric Cardiology (1) and Paediatric Cardiac Surgery (2), University Children's Hospital,
Jagiellonian University Medical College, Kraków, Poland;
Students' Scientific Group at Department of Cardiology in University Children's Hospital, Jagiellonian
University Medical College, Kraków, Poland (3).*

Tetralogy of Fallot (TOF) is a heterogeneous group of defects with variable degree of right ventricle outflow tract obstruction, hypoplasia of pulmonary arteries and pulmonary blood flow, which influences the strategy for different surgical and interventional procedures. The aim of the study is a retrospective analysis of interventional treatment in children after TOF correction depending on the necessity for initial palliative surgery vs primary correction.

The material consisted of 115 patients (pts) who underwent complete correction of TOF in the period of 2006-2017 in our centre. The data used to analyze were obtained from echocardiography and catheterization (cath) results. All patients were divided into 2 groups: Group 1 (Gr1=36 pts, 31,3%) with initial palliative surgical treatment and Group 2 (Gr2=79pts, 69,7%) with primary complete correction.

The study population consisted of 73 (63,48%) males and 42 (36,52%) females. The median of observation time after correction was 5,34 years with interquartile range (IQR) [2,9 – 8,3]. The median of correction age was 16,3 [4,9-48,5] months, however children in Gr1 had correction significantly later than Gr2 (18,3 vs 12,8 months, $p=0,008$) with similar early mortality (8,3% vs 7,6%). The medians of z-scores at time of correction were significantly lower in Gr1 for the left (-2,05 vs -0,12, $p=0,004$) and right (-2,85 vs -1,02, $p<0,001$) pulmonary artery. In the post-operative period generally 36 percutaneous interventions single or combined were performed and included: balloon pulmonary valvuloplasty (16 in Gr1 vs 4 in Gr2), pulmonary artery stents implantations (15 vs 5), ASD closure (1 pts). Children in Gr1 after correction significantly more often needed: 1) single interventional cath (50,0% vs 7,59%, $p<0,001$), 2) at least one implantation of the stent into pulmonary artery (27,78% vs 6,33%, $p=0,003$), 3) reinterventions (more than 1 cath) (27,78% vs 2,53%, $p<0,001$) and reoperations ($n=11$; 30,56% vs $n=10$; 12,66%, $p=0,041$). Analysis of Kaplan-Meier estimator revealed that probability of reoperation (log-rank $p=0,025$) and at least one interventional catheterization ($p<0,001$) is higher in Gr1.

The patients with TOF requiring initial palliative treatment had greater risk of interventional catheterizations after surgical correction as well as reoperations mostly due to initial hypoplastic pulmonary arteries.